

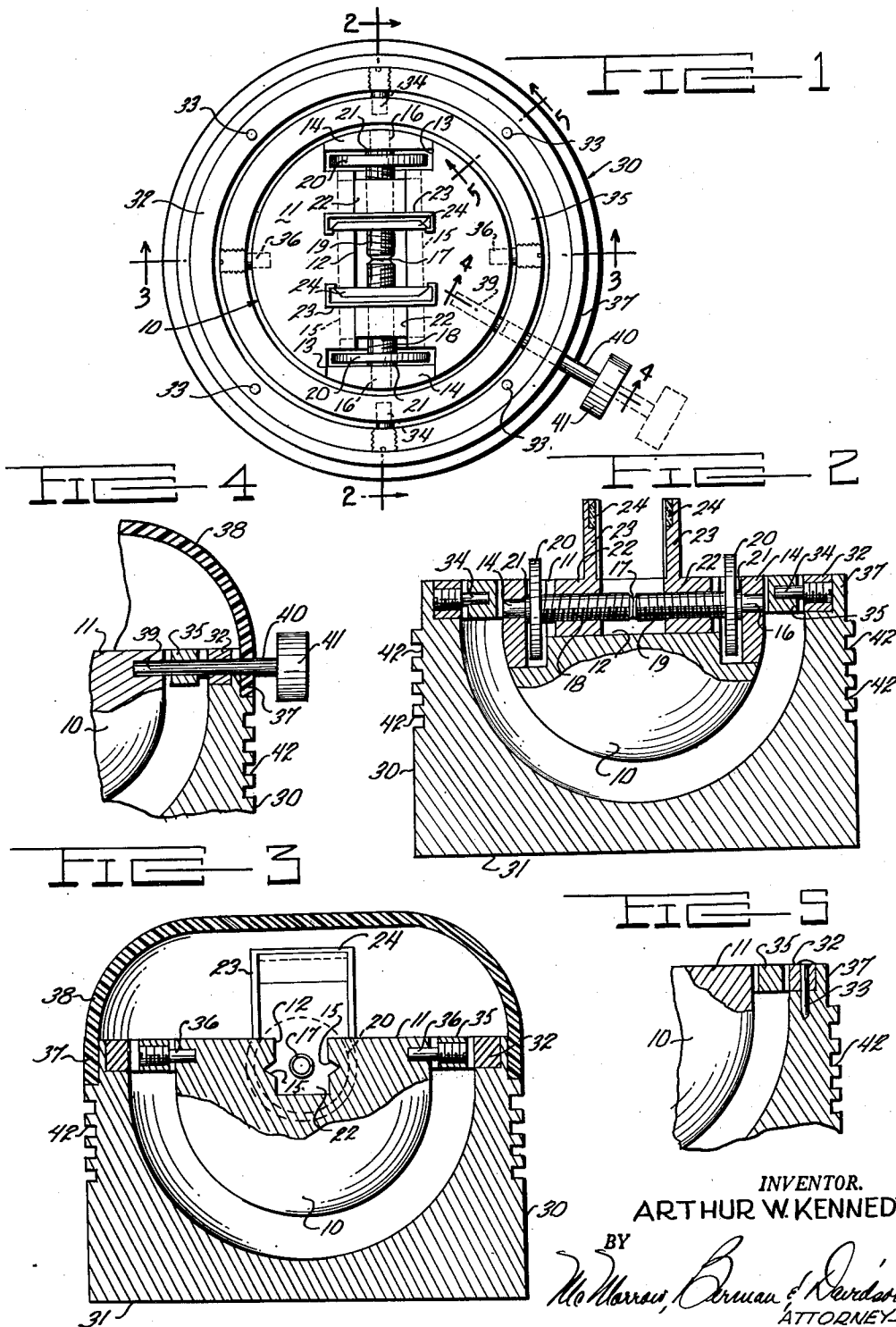
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WATCHMAKER'S POISING TOOL

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WATCHMAKER'S POISING TOOL

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My invention relates to watchmakers' tools, and more particularly to tools for poising the balance wheels of watches. In the poising of balance wheels, it is of the utmost importance that an absolutely horizontal support for the opposite ends of the balance staff be provided. Moreover, it is important to provide a substantially friction-free support for the opposite ends of the balance staff.

With the foregoing in view, it is an object of my invention to provide an improved watchmaker's poising tool.

A further object is to provide an improved watchmaker's poising tool which includes a self-leveling base for the supports for the balance staff.

A further object is to provide an improved watchmaker's poising tool which includes adjustably-spaced, knife-edge supports for opposite ends of a balance staff, and self-leveling means for maintaining the base and supports level at all times.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts thereof, and will be readily understood by those skilled in the art upon reference to the attached drawing in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawing:

Figure 1 is a plan view of the invention, the cover for the same being removed;

Figure 2 is a transverse vertical sectional view taken substantially on the plane of the line 2-2 of Figure 1;

Figure 3 is a transverse vertical sectional view taken substantially on the plane of the line 3-3 of Figure 1, the cover for the device being shown in place;

Figure 4 is a fragmentary vertical sectional view taken substantially on the plane of the line 4-4 of Figure 1, but showing the cover in place;

Figure 5 is a fragmentary vertical sectional view taken substantially on the plane of the line 5-5 of Figure 1.

Referring specifically to the drawing, wherein like reference characters have been used throughout the several views to designate like parts, 10 designates generally a weighted base which is of substantially hemispherical form and includes a flat upper surface 11. A transverse groove 12 is formed in the upper surface 11 diametrically thereof. Opposite ends of the groove 12 are laterally enlarged, as at 13, for a purpose to be ap-

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parent later. The open ends of the enlargements 13 are closed by plugs 14 which are secured in position and to the base 10 by any suitable means. The groove 12 includes opposed side walls, each of which is formed with a longitudinally-extending guideway or recess 15. The plugs 14 are formed with aligned bores providing journals for the spindle ends 16 of a threaded screw or shaft 17. One-half of the shaft 17 is formed with left-hand screw-threads 18, while the opposite half is formed with right-hand screw-threads 19. The shaft 17 has fixed thereon outwardly of the threaded portions 18 and 19 a pair of hand wheels 20. Thrust washers 21 are preferably mounted on the shaft 17 between the hand wheels 20 and the plugs 14. A pair of slides 22 in the form of nuts are threaded on the shaft portions 18 and 19, whereby to travel in opposite directions upon rotation of the shaft 17 in a well known manner. It should be noted, likewise, that the slides 22 are complementary to the groove 12 including the recessed guides 15, whereby to ensure steady sliding movement of the slides upon rotation of the screw 17. Each slide 22 has fixed thereto an upwardly-directed support 23 which extends upwardly of the top surface 11 for the base. Such supports 23 include free top edges and opposed facing surfaces. A pair of knife edges 24 are carried by the supports 23 in inset relation to the free upper edges and facing surfaces thereof. The purpose of this arrangement is to protect the knife edges 24 which are preferably formed of semi-precious jewel material against breakage in the event that the supports 23 are moved into abutting relation, or in the event that the tool is dropped. The knife edges 24 are in horizontal alignment and are adapted to provide the actual supports for opposite ends of a balance staff. By adjusting the supports 23 toward and away from each other, balance staffs of different lengths or sizes may be readily accommodated by the tool.

The mount for the tool comprises a case or casing 30 which includes a flat bottom 31 for resting upon a watchmaker's bench or like support. A ring 32 is inset in the upper free edges of the case 30 and secured thereto in any suitable manner, as by the screws or nails 33. A pair of diametrically-opposed pintles 34 are fixed to the ring 32 and extend radially inwardly thereof to provide bearings to define a horizontal axis for a second ring 35. The ring 35 likewise includes a pair of diametrically-opposed and radially inwardly-extending pintles 36 defining a second horizontal axis. As best seen in Figure 1, the

pintles 34 and 36 are offset 90° relative to each other, whereby to provide a universal mount or gimbel for supporting the base 10. To achieve such universal mounting, the pintles 34 are journaled in the ring 35, while the pintles 36 are journaled in the base 10. Obviously, the pintles 34 and 36 are disposed above the center of gravity of the base 10, whereby the base 10 is self-leveling by gravity. Thus, the knife edges 24 are disposed horizontally at all times, whereby to provide a level support for the opposite ends of the balance staff, irrespective of whether or not the watchmaker's bench upon which the flat bottom 31 of the case 30 rests is level.

The upper edges of the case 30 outwardly of the ring 32 are rabbeted, as at 37, to provide a seat for a cover 38 which is preferably formed of transparent material. At times, it is desirable to lock the parts against relative pivotal movement and to achieve this desirable result, alignable recesses 39 are formed in the base 10, rings 32 and 35, the case 30, and the cover 38. A locking pin 40 is adapted to be inserted in the aligned apertures to lock the parts against relative pivotal movement and also to lock the cover 38 in position on the case 30. The pin 40 may be provided with an enlarged head 41 providing a finger grip.

It is apparent from the foregoing that I have provided a novel combination of a watchmaker's poising tool with a case for the same and a self-leveling mount.

In use, with the case 30 resting on a watchmaker's bench or the like, the mount or case 30 is gripped by one hand, while the watchmaker manipulates the balance staff or other part being tested with the other hand. To facilitate such manipulation, by the watchmaker, the periphery of the case 30 is provided with a plurality of circumferential grooves 42 providing a hand grip.

While I have shown and described what is now thought to be a preferred embodiment of the invention, it is to be understood that the same is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structure shown and described hereinabove except as hereinafter claimed.

I claim:

1. A watchmaker's poising tool, comprising a weighted base, said base being a substantially hemispherical weight including a flat upper surface formed with a groove extending diametrically thereof, said groove including opposed side walls formed with opposed recessed guideways extending longitudinally of said side walls, slides complementary to said groove and recesses and slidably guided therein, means cooperating with said base and said slides for moving said slides toward and away from each other, a support fixed to each slide and extending upwardly of said upper surface of said base, said supports including free upper edges and opposed facing surfaces, a knife edge carried by each support in inset relation to said upper edge and facing surface, said knife edges being horizontally aligned and adapted to support opposite ends of a balance

staff thereon, a mount for said base, and means mounting said base on said mount above the center of gravity of said base for universal pivoting movement relative to said mount whereby to provide a self-leveling base.

2. A watchmaker's poising tool comprising a mount adapted to be positioned on a supporting surface, a base mounted in said mount for movement about a horizontal axis transverse thereof and for movement about a horizontal axis transverse of said first named axis, said base including a flat upper surface, there being a groove extending completely across the upper surface of said base, a pair of slides arranged in side by side spaced relation with respect to each other supported within the groove of said base and guided thereby, means cooperating with said base and said slides for moving said slides toward and away from each other, an upstanding support carried by each of said slides, said supports facing each other, and a knife edge carried by each support in the facing surface, said knife edges being horizontally aligned and adapted to support therebetween an element to be balanced.

3. A watchmaker's poising tool comprising a mount adapted to be positioned on a supporting surface, a base mounted in said mount for movement about a horizontal axis transverse thereof and for movement about a horizontal axis transverse of said first named axis, said base including a flat upper surface, there being a groove extending completely across the upper surface of said base, a pair of slides arranged in side by side spaced relation with respect to each other supported within the groove of said base and guided thereby and movable toward and away from each other, a rotatable screw carried by said base and having portions provided with oppositely directed threads, one of the portions of said screw being in threaded engagement with one of said slides and the other of the portions of said screw being in threaded engagement with the other of said slides, an upstanding support carried by each of said slides, said supports facing each other, a knife edge on the facing surface of each support, said knife edges being horizontally aligned and adapted to support therebetween an element to be balanced, and hand actuable means projecting from the upper surface of said base and operatively connected to each of the threaded portions of said screw for effecting the rotative movement of the latter to thereby move said slides toward and away from each other.

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